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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,948	07/28/2003	Toru Yoshie	OKI.555	2267

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EXAMINER

LAM, CATHY FONG FONG

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/627,948	Applicant(s) YOSHIE, TORU	
	Examiner Cathy Lam	Art Unit 1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Oct. 28th 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-7, 10-13 and 15-18 is/are rejected.
- 7) ☒ Claim(s) 8, 9 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

In view of the amendment and remarks filed on October 28th 2004, the pending claims are continued to be unpatentable as following:

Drawings

The corrected drawings filed on Oct. 28th 2004 are acceptable.

Specification

Applicant is required to make the same corrections in the specification as in the claims.

Corrections are required for /3R, /3Wmax/2 on pages 9-12.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-7, 10-13 and 15-18 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Jain (US 5602423).

Jain discloses a damascene structure comprised of a wafer substrate (20), an insulating layer (22), grooves (24,26), a pattern of insulating pillar (50) and conductive lines (30,32) (Fig. 2B).

Grooves (24&26) are formed into the insulating layer (22), with one channel (24) is wider than the other channel (26) (Fig. 1B).

An insulating pillar (38) (Figs. 3-6) or a pattern of insulating pillars (50) are formed in the wider channel (24), with the top surface of the insulating pillar(s) being coplanar with the upper surface of the insulating layer (22) (col 5 L 28-34).

Such arrangement is to avoid dishing and overstretching during chemical and mechanical polishing (col 5 L 41-43).

Conductive material (28) is formed into the channels and completely filled the channels (col 5 L 35-36).

The pattern of the insulating pillars (50) can be chosen in a staggered arrangement or having an edge pillar (54) that tailors to one's desire (Figs. 8 & 9). The pillar(s) are formed from the same layer of the insulating layer (col 6 L 24-26, L 31-32, L 57-58).

Response to Arguments

3. Applicant's arguments filed on October 28, 2004 have been fully considered but they are not persuasive. Applicant traverses the art rejection and raises the following issues:

- A. Jain fails to disclose a particular width and thickness for the wiring.
- B. Jain also fails to disclose a width and thickness related in any manner.
- C. Jain fails to disclose a particular distance between slit dummies.

In response to the above issues:

- A. In claims 1 & 11, applicant has not clearly set forth the thickness of the wiring nor the width or the wiring. The limitations in claims 1 & 11 only state that the wiring in the groove is large (or wide) enough so that slit dummies are required and formed within the groove.
- B. Since H is a variable and applicant has not clearly stated such thickness of the wiring thus the W_{\max} is unknown and therefore the width can not be determined.

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Jain shown in Fig. 7 that a narrower conductor (26) does not required any slit dummies, whereas the wider conductor (52) requires a plurality of insulating pillars (or slit dummies) (50). Jain clearly shows that pillars are required in a wider conductor.

C. The distance L is depended upon W_{\max} which is depended upon H, since H is not claimed, thus L is unknown. However applicant is advised to incorporate claims 8, 9 or 14 into claims 1 & 11, in order to overcome the art rejection.

Allowable Subject Matter

4. Claims 8, 9, and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if incorporate into independent claims.

5. The following is a statement of reasons for the indication of allowable subject matter: there is no mention in the prior art directed to the distances between the insulating pillars.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Cathy Lam
Primary Examiner
Art Unit 1775

cfl
January 7, 2005